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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/803,400

03/18/2004

Thomas Eisenhammer

36076US1

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116 7590 04/11/2007
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EXAMINER

WARD, JESSICA LEE

ART UNIT

PAPER NUMBER

1733

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/803,400

Applicant(s)

EISENHAMMER ET AL.

Examiner

Jessica L. Ward

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 18-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 2, it recites the limitation "the first contact surface" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is suggested to change this phrase to --the first bonding surface--.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perego (EP 0 866 450, previously cited) in view of Katsufumi (JP 2000-315338, listed in IDS).

Perego teaches the following limitations:

- Essentially plane disk-shaped first substrate 3 with a central opening, first bonding surface, and back surface (Figure 1; column 4, lines 21-24)
- Essentially plane disk-shaped second substrate 14 with a central opening and second bonding surface to be bonded to the first bonding surface by an adhesive layer (Figure 1; column 5, lines 36-38; column 6, lines 44-56)
- Providing first substrate and second substrate

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- Applying liquid adhesive to the first bonding surface or the second bonding surface or both (column 8, lines 7-31)
- Elastically deforming the first substrate (note second substrate can remain planar or also be deformed as shown in Figures 1 and 3) in such a way that the first bonding surface assumes a bent shape and upholding the deformation by mechanical means acting on the first substrate (Figure 1; column 4, lines 25-57, **with close attention to lines 39-40 where the reference specifically states that mechanical holding means can be substituted for vacuum holding means;** column 7, lines 42-50)
- Moving the first substrate and the second substrate towards each other and establishing an area of contact where edges of the first bonding surface and second bonding surface touch (note dotted line representing substrate 14 in Figures 1 and 3; column 5, lines 53-58; column 8, lines 2-6)
- Releasing the first substrate so as to allow it to assume its essentially plane configuration in such a way that the area of contact spreads essentially to the entire first and second bonding surfaces (column 8, lines 22-31)

It is unclear if the reference teaches positioning the first and second substrates in a vacuum chamber, after applying the liquid adhesive, evacuating the vacuum chamber, and raising the pressure in the vacuum chamber to atmospheric pressure. It is known in the art to associate first and second discs with first and second holders (29, 33) and apply adhesive to at least one of the discs before moving the holders toward each other and into a vacuum chamber (20), where the discs are bonded, and then raise the pressure in the vacuum chamber to

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atmospheric pressure, as taught by Katsufumi (abstract and oral translation). This method is an improvement over prior art methods, where the holders are an integral part of the vacuum chamber and therefore only moveable within the vacuum chamber (Prior Art Figures 7-8 of Katsufumi), because it allows for a continuous process while still preventing the formation of bubbles in the adhesive since bonding still takes place in a vacuum chamber (oral translation).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to move the first and second holders, which are associated with the first and second substrates of Perego, toward each other and into a vacuum chamber, after applying the liquid adhesive of Perego to at least one of the substrates, evacuate the vacuum chamber, and raise the pressure in the vacuum chamber to atmospheric pressure because such a method is known in the art for bonding discs in a continuous manner while preventing the formation of bubbles in the adhesive since bonding still takes place in a vacuum chamber, as taught by Katsufumi.

*Note Perego elastically deforms the first substrate (and second substrate) before applying the adhesive; however, the present claim language does not exclude the elastically deforming step taking place before the adhesive is applied to the substrates or before the substrates are positioned in the vacuum chamber.

5. Claims 1-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noriaki (JP 2003-006940, listed in IDS, on-line translation attached to present office action) in view of Shizuki et al. (JP 1-204727) and/or Kano (US 4990208, previously cited).

Noriaki teaches the following limitations:

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- Essentially plane disk-shaped first substrate 1 with a central opening, first bonding surface, and back surface
- Essentially plane disk-shaped second substrate 2 with a central opening and second bonding surface to be bonded to the first bonding surface by an adhesive layer
- Providing first substrate and second substrate
- Applying adhesive 3 to the first bonding surface or the second bonding surface or both (Figure 2; section [0032])
- Subsequently positioning, in a vacuum chamber 12, the first substrate and the second substrate with the second bonding surface facing the first bonding surface at a distance (Figure 4; section [0023])
- Elastically deforming the first substrate in such a way that the first bonding surface assumes a bent shape and upholding the deformation by mechanical means 11 acting on the first substrate (Figures 3-4; sections [0020-0023])
- Moving the first substrate and the second substrate towards each other and establishing an area of contact where edges of the first bonding surface and second bonding surface touch (note edges of central openings touch – Figures 3-4, section [0025])
- Releasing the first substrate so as to allow it to assume its essentially plane configuration in such a way that the area of contact spreads essentially to the entire first and second bonding surfaces (Figure 5)

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- Raising the pressure in the vacuum chamber to atmospheric pressure (section [0027])

*Note present claim language does not exclude beginning the elastically deforming step (Figure 3) before positioning the substrates within the vacuum chamber (Figure 4), as taught by Noriaki (sections [0020-0023]).

It is unclear as to whether the reference teaches applying a liquid adhesive. One reading Noriaki as a whole would have appreciated that the reference is not concerned with a particular type of adhesive or to which substrate the adhesive is pre-applied (section [0032]). Therefore, it would have been obvious to one having ordinary skill in the art to apply a liquid adhesive to the first and/or second substrate of Noriaki before bonding the substrates in a vacuum chamber because such is known in the art, as taught by Shizuki (abstract; Figure 1) and/or Kano (Figure 4; column 6, lines 20-55), where this eliminates the time/money needed to make pre-formed adhesive sheets.

6. Claims 1-9 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichlseder (DE 100 08 111, listed in IDS, refer to US 2003/0070765 for translation) in view of Shizuki et al. and/or Kano.

Eichlseder teaches the following limitations:

- Essentially plane disk-shaped first substrate 3 with a central opening, first bonding surface, and back surface
- Essentially plane disk-shaped second substrate 5 with a central opening and second bonding surface to be bonded to the first bonding surface by an adhesive layer

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- Providing first substrate and second substrate
- Applying adhesive to the first bonding surface or the second bonding surface or both (section [0028])
- Subsequently positioning, in a vacuum chamber 1, the first substrate and the second substrate with the second bonding surface facing the first bonding surface at a distance (section [0028]; Figure 1(e))
- Elastically deforming the first substrate (and the second substrate) in such a way that the first bonding surface assumes a bent shape and upholding the deformation by mechanical means acting on the first substrate (Figure 1(i); section [0028])
- Moving the first substrate and the second substrate towards each other and establishing an area of contact where edges of the first bonding surface and second bonding surface touch (note edges of central openings touch – Figure 1(i), section [0028])
- Releasing the first substrate so as to allow it to assume its essentially plane configuration in such a way that the area of contact spreads essentially to the entire first and second bonding surfaces (Figure 1(j); section [0028])
- Raising the pressure in the vacuum chamber to atmospheric pressure

It is unclear as to whether the reference teaches applying a liquid adhesive. One reading Eichlseder as a whole would have appreciated that the reference is not concerned with a particular type of adhesive or to which substrate the adhesive is pre-applied. Therefore, it would have been obvious to one having ordinary skill in the art to apply a liquid adhesive to the first and/or second substrate of Eichlseder before bonding the substrates in a vacuum chamber

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because such is known in the art, as taught by Shizuki (abstract; Figure 1) and/or Kano (Figure 4; column 6, lines 20-55), where this eliminates the time/money needed to make pre-formed adhesive sheets.

Response to Arguments

7. Applicant's arguments filed 1/29/07 have been fully considered but they are not persuasive.

8. On p. 7 of the remarks, Applicant argues that it is understood from Perego that evacuation of the spaces 8 and 19 is what holds the substrates 3 and 14 in place on their respective holders. Applicant argues that this would be ineffective if the substrates were positioned in a vacuum chamber because then the pressure would be the same on both sides of the substrate and consequently the substrates could not be retained in place.

The Examiner agrees with this logic but points out that Applicant has failed to acknowledge Perego's disclosure of an alternative embodiment where the vacuum means (7, 8, 9, 19) can be replaced by mechanical means for holding the substrates in place on their respective holders (column 4, lines 39-40). One would readily appreciate that mechanical holding means would be effective in a vacuum chamber and therefore it would have been obvious to bond the discs of Perego by moving the holders of Perego into a vacuum chamber because this allows for a continuous process while still preventing the formation of bubbles in the adhesive, as taught by Katsufumi (see rejection set forth above).

Relevant Art

9. The Examiner would like to bring JP 2006-323957 to Kitano et al. to Applicant's attention. This reference anticipates Applicant's claimed invention but fails to qualify as prior

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art against the present claims because it was published on 11/30/2006 (and filed on 5/20/2005) and therefore does not precede Applicant's effective filing date (8/22/2003) or actual filing date (3/18/2004).

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica L. Ward whose telephone number is 571-272-1223. The examiner can normally be reached on Mon-Fri between 9AM and 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard D. Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jessica L. Ward
Primary Examiner
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A handwritten signature in black ink, appearing to read 'Jessica L. Ward', with a long horizontal flourish extending to the right.